Technical Standards Working Group (TSWG) Meeting

Presentation by the Joint Utilities of New York

February 15, 2023

CASE 18-E-0138 – Proceeding on Motion of the Commission Regarding Electric Vehicle Supply Equipment and Infrastructure

Contents For Discussion Purposes Only – Subject to Change

JOINT UTILITIES OF NEW YORK

nationalgrid Orange & Rockland NYSEG RG&E Part of the AVANGRID Family Central Hudson A FORTIS COMPANY conEdison

Agenda

- Review of July 2022 Managed Charging Order requirements
- Joint Utility (JU) proposal summary
- Proposed next steps for TSWG
- Q&A and Discussion

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Metering Technology Standards Investigation Process (Phase 1)

1. **The Joint Utilities must "propose a method for testing the accuracy of managed charging-enabling technologies" by January 10, 2023.**
   - "Managed charging enabling technologies" include Networked Level 2 EVSE and EV telematics.
2. **The Technical Standards (TSWG) will meet within 45 days (by Feb 24, 2023) to "to consider the method(s) proposed by the Utilities to establish metering and testing standards or criteria."**
   - The TSWG shall also consider other work in this area occurring at other New York State agencies and other non-New York jurisdictions, to the maximum extent feasible. In the event another jurisdiction, including any other New York State agency, adopts and publishes metering standards during the course of the managed charging programs, the TSWG should consider such standards in their analysis.
3. **In phase one, by July 14, 2023, "the TSWG shall establish eligibility criteria in order to determine what equipment will be considered for testing purposes."**

Metering Technology Standards Investigation Process (Phase 2 & 3)

4. **In phase two, not later than July 14, 2024, "the TSWG shall measure and evaluate the reliability and accuracy of the devices on the eligible equipment list, taking into consideration the methods proposed in the Utilities' filings."**

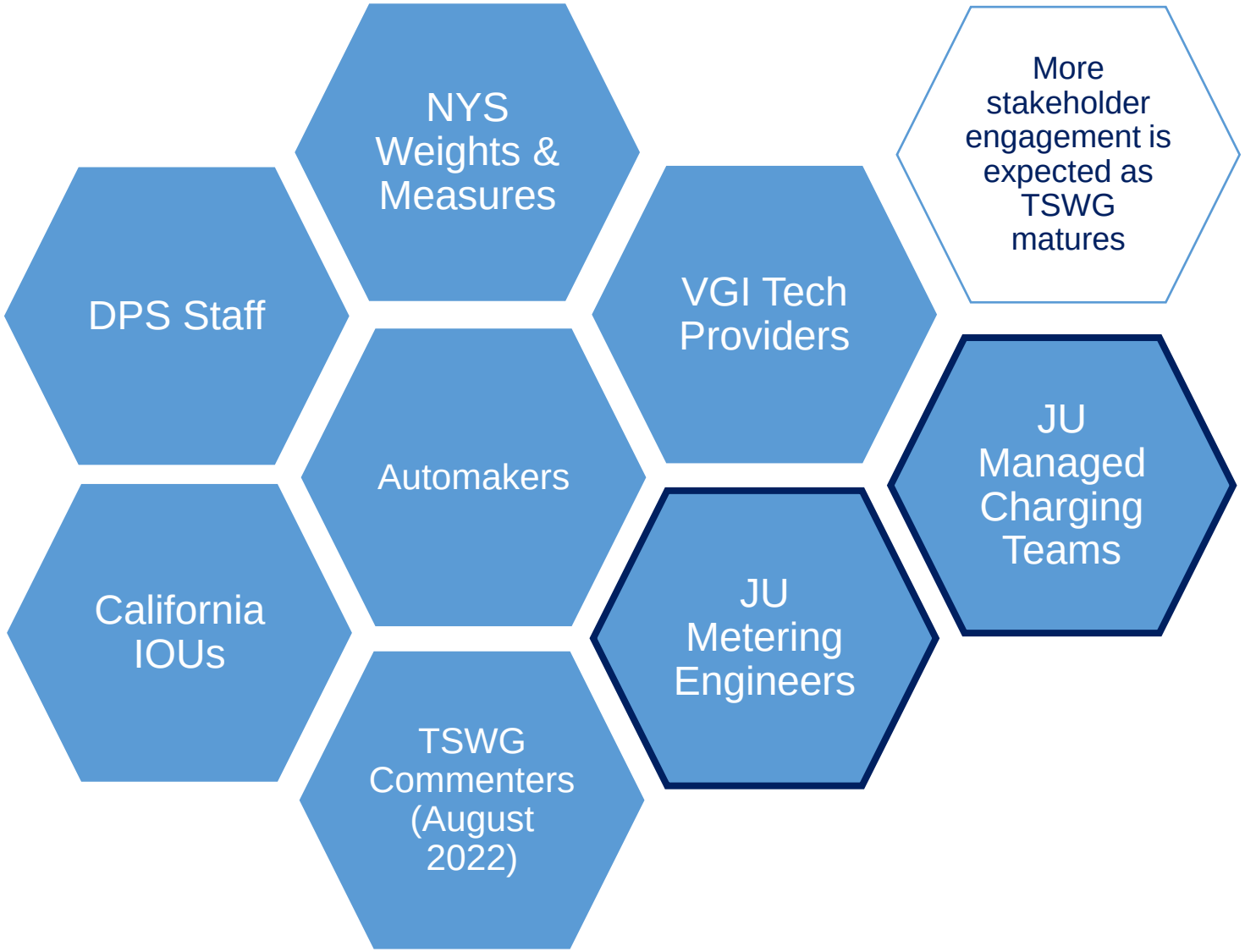
   - In the event the TSWG intends to use real-world customer data, or requires customer participation, the TSWG shall ensure adequate consumer protections are in place. Staff is directed to review the TSWG recommendations for compliance with customer privacy and consumer protections, and is directed to bring such recommendations to the Commission for review in the event that the protections provided are inadequate.

5. **"In the third phase, prior to October 1, 2024, the TSWG shall submit a comprehensive filing to the Commission for approval. The filing shall detail the findings of the previous two phases and make recommendations to establish minimum standards and specifications for alternative metering technologies."**

   - The filing shall also include a proposal for addressing technologies which do not meet minimum accuracy standards. For example, one option may be tiered incentive structures that correspond with categories of accuracy of the metering device. While these standards are to be proposed for the purposes of the managed charging program, we anticipate that they may be an important framework in addressing any metering concerns with other alternative measurement technologies.

Proposal development and stakeholder engagement

- Joint Utilities have established a Testing Accuracy Task Force comprised of metering engineers and managed charging program leads to lead proposal development
- JU have engaged with many key stakeholder groups to understand the current state of EV charging submetering and future requirements
- We look forward to even more stakeholder engagement as the TSWG progresses over the next few years



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JU Stakeholder Meetings to Date

State Agencies

- NY Department of Public Service
- NY Department of Agriculture, Weights & Measures

Utilities Outside of New York

- Duke Energy
- Southern California Edison
- San Diego Gas & Electric

Industry Associations

- Vehicle-Grid Integration Council
- Alliance for Automotive Innovation

OEMs and Vendors

- WeaveGrid
- BMW (postponed)

State of the market – Existing utility metering accuracy practices

Rigorous meter testing practices include:

- Governed by 16 NYCRR Part 92 and Part 93.
- Reliance on long-established standards (i.e., ANSI, meter size/form factor).
- Meters are utility-owned, installed, and maintained.
- Each shipment of meters is tested (acceptance testing).
- Ongoing testing of random samples of installed meters (in-service testing).
- Established data transfer, data management, and billing system integrations.
- Plus many other efforts to ensure accurate, reliable billing practices statewide.

State of the market – Related activities on EV/EVSE metering

Related efforts

- California PUC issues EVSE submetering protocol in Aug. 2022 (still being established).
- Other states, including Maryland, Minnesota, Connecticut, Massachusetts, and North Carolina, are taking early steps to explore/investigate.
- 2023 edition of NIST Handbook 44 includes official (non-tentative) language on testing protocol for commercial EVSE. NY may choose to adopt it.
  - NYS Weights & Measures has already gained experience testing commercial L2 chargers. (See Aug TSWG)

Gaps

- Technology readiness. EVSE and EV markets are still very dynamic.
- Incomplete national standards for EVSE and telematics testing, certification, and compliance.
- "Data quality" is broader than just metering accuracy in the lab.
- Metering approaches generally need to be cost-effective, durable, widely applicable.

JU proposal summary

PHASE 1: Outreach

- TSWG should conduct **outreach** to industry to gather existing testing and accuracy-related information and documentation, to be complete by May 31, 2023.
- TSWG should consider testing EVSE and EV models that are supported by one or more **utility managed charging programs**, with priority given to devices supported by multiple programs.

PHASE 2: Data Collection

- TSWG should conduct a **one-time data collection** exercise for research purposes (i.e., not for 'equipment approvals'), as shown on the next slides, to be completed by July 14, 2024.

PHASE 3: Synthesize Results

- TSWG will **summarize the results** from the Phase 1 and Phase 2 exercises by October 1, 2024.
- **The TSWG should incorporate JU experiences** from implementing the managed charging programs (e.g., any accuracy or data quality issues that arose).

Pathways for EVSE/EV data to reach the utility

Utility Meter

Utility-owned Meter → Utility data transfer/backhaul → Utility Meter Data Management System → Existing integrations with Billing Systems → Customer Bill

EVSE Pathway

Customer-owned Networked EVSE w/ embedded meter → Resi: Wi-Fi Comm: 4G Cellular → EVSP networking provider → Third-party managed charging provider → Data validation and transfer to Utility

Vehicle Telematics (2 pathways)

1) On-board diagnostic (OBD) approach

Customer-owned EV → OBD kWh consumption → Vehicle cellular connection → OEM-controlled data backend → Third-party managed charging provider → Data validation and transfer to Utility

2) "Snapshot" approach

Customer-owned EV → Vehicle cellular connection → OEM-controlled data backend → Composite kWh reading from battery state-of-charge snapshots → Third-party managed charging provider → Data validation and transfer to Utility

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Phase 1 Proposed process to determine devices to be tested

Utility-specific lists of supported devices in Managed Charging programs

*Statewide **prioritized** list of devices and platforms to be tested for TSWG research purposes*

Utility A
Hires Managed Charging Vendor A, who supports:
- EVSE 1
- EVSE 2
- ...

- EV Model 1
- EV Model 2
- ...

+

Utility D

Utility C

Utility B
Hires Managed Charging Vendor B, who supports:
- EVSE 1
- EVSE 3
- ...

- EV Model 1
- EV Model 2
- EV Model 4
- ...

→

EVSE to be tested:
- EVSE 1
- EVSE 3
- ...

EVs to be tested:
- EV Model 1
- EV Model 2
- ...

Managed Charging Vendors to be used:
- Vendor A
- Vendor C

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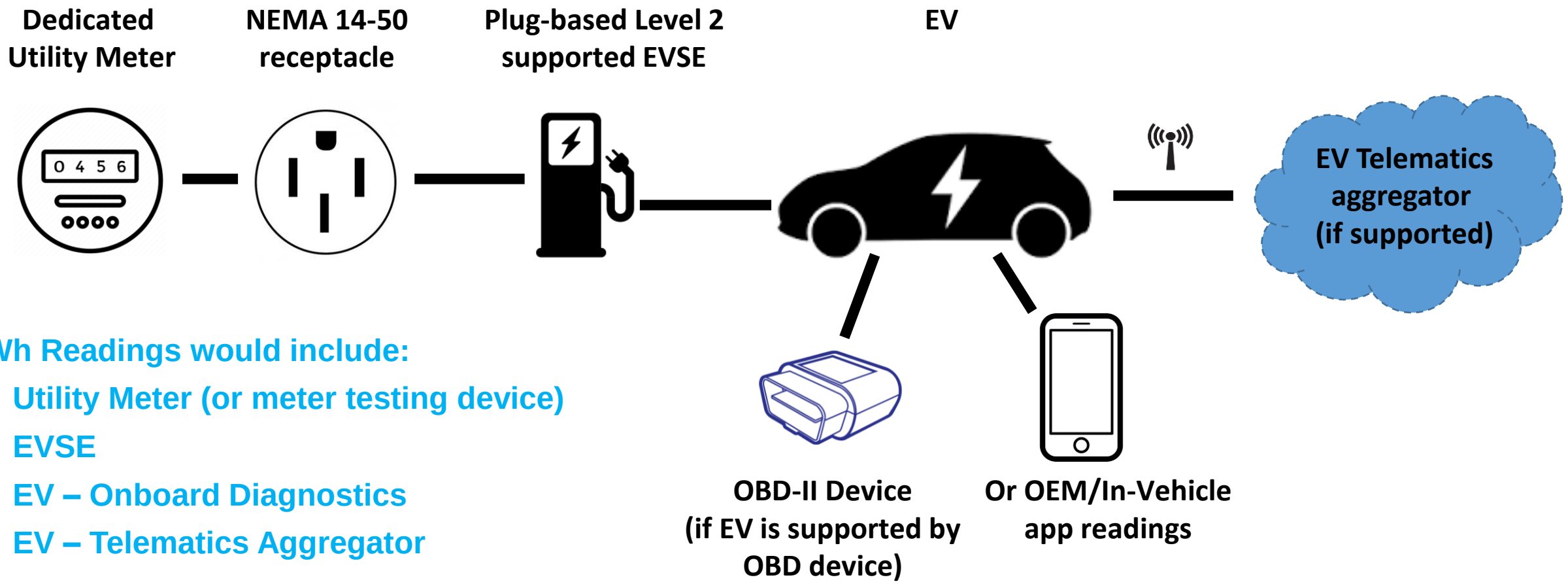
Phase 2 Proposed data collection exercise

The accuracy testing process below could capture three to four kWh readings per charging session.



kWh Readings would include:

1. **Utility Meter (or meter testing device)**
2. **EVSE**
3. **EV – Onboard Diagnostics**
4. **EV – Telematics Aggregator**

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What would the Phase 2 data collection proposal accomplish?

Proposal should

- Meet the Order's requirements.
- Provide best metering accuracy research baseline to date.
- Provide first apples-to-apples comparison across multiple metering approaches, including managed charging providers.
- Test devices that are supported by JU managed charging programs
- Move forward TSWG, industry, and regulator conversations on this important topic.

Proposal would not

- Test all EV or EVSE devices
- Test all managed charging telematics vendors.
- "Approve" or "Disapprove" any devices for use in EV managed charging programs.
- Create an accuracy standard for EV or EVSE metering.
- Will not, on its own, resolve many other important issues around data quality, data useability, data security, reliability, cost, accessibility, and many more…

Minimum Implementation Requirements

1. **A budget, a lead implementor/administrator, and a testing location (e.g., a lab).**
   - The JU recommends hiring a third-party administrator (e.g., EPRI, NRTL, NY-BEST).
2. **A list of devices to be tested** as proposed in Phase 1, plus other devices as decided upon by the TSWG (e.g., Level 1 EVSE, DCFC, meter collar DER interconnection devices, smart electrical panels, and load disaggregation devices,)
3. **A source of sample devices to test.**
   - The JU recommends avoiding customer-owned equipment, if possible. Test-devices could be donated by OEMs, utility-owned, utility employee-owned, etc.
4. **A "testing procedure."**
   - Preference is to align with existing test procedures where possible, e.g., NIST Handbook 44.
   - Data to be collected, if available; Energy consumption (kWh), voltage (V), Current (A), date and timestamp.
   - Methods to evaluate other issues (connectivity, GPS, etc.) may or may not be possible.
5. **Utilities can leverage existing MC programs and other pilot programs.**
   - E.g., Con Edison disaggregation pilot with General Motors to test various technologies for data accuracy and completeness in a lab setting.

Proposed Next Steps for TSWG

- Use biweekly TSWG meetings to:
  1. Hear Stakeholder's insights, feedback, and testing experiences.
  2. Plan for Phase 1/Phase 2 implementation:
     - Establish implementation plan and budget.
     - Develop list of devices to test and source.
     - Select third-party implementer to design and implement a testing procedure.

Q&A and Discussion